



An ISO 9001
Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)
Tiruchirappalli-620 014, Tamil Nadu, India
Dept: MATERIALS MANAGEMENT/BOI

Annexure – A- Terms and Conditions

ACCEPTANCE OF TECHNO - COMMERCIAL TERMS AND CONDITIONS BY THE BIDDERS

Description of the Equipment:		Manual Handling Equipment
Projects		Panki 1x660MW Project.
BHEL Tender No. & Date		1802000613 dated 21.09.2020
<i>To be filled by bidder</i>		
Name of the firm (Bidder)		:
Address		:
Contact details		<u>Contact person 1</u> Name: Designation: Office Phone: Mobile: e-mail: <u>Contact person 2</u> Name: Designation: Office Phone: Mobile: e-mail:
Sl. No.	Terms and conditions	Vendor's confirmation
1 (a)	Technical: Supply of Electrical Handling Equipment shall be as per following Specifications attached with the enquiry. • MOU/TPBHEL/M_HOIST Rev.00 • Annexure III to specification • 0-99-502-40362/02 • Quality Plan SQP:SD:34 Rev-00	
1 (b)	Evaluation method Tender will be evaluated on package basis as mentioned below. Evaluation shall be on Total cost to BHEL basis. • Package-I: - Manually operated chain pulley block capacity 2.0T; Lift 10.0M (RFQ Sl. No. 10) • Package-II: - Manual Ratchet lever hoist capacity 10.0T, Lift 37M, Manual operated Chain pulley block capacity 3.0T, Lift 30M, Chain Pulley Block capacity 10T, Lift 20M, Manual Trolley with CPB capacity 10T, lift 37M. (RFQ Sl. No. 20 to 50)	

1 (c)	Offer shall be considered only if bidder is meeting Tender Prequalification Requirement Annexure-B. Vendor to comply with Pre-Qualification requirement of the tender and submit along with their technical bid - the credentials and other documents as indicated in the PQR in the format prescribed. Otherwise their offer may get rejected.	
1 (d)	Vendor shall quote as per attached price and Unpriced Schedule format only. The evaluation currency for this tender shall be INR .	
1 (e)	Vendor offers will be considered for price bid opening subject to fulfilment of techno commercial suitability and approval of vendor against supply of items covered in the enquiry by BHEL and end customer.	
1 (f)	Inspection by BHEL/ BHEL approved TPIA/Customer	
2 (a)	Firm Price: The quoted / finalised rates shall be Firm till execution of the supplies. Offer with PVC clause will not be considered.	
2 (b)	The tender will be operated in two part bid system. One-part consisting of Technical bid with Commercial terms & conditions and other part is Price Bid. Based on the above and other conditions, as well as technical capability, vendors will be short-listed. The Techno-commercial bid will be opened on the due date and based on the suitability of techno-commercial bid, the price Bid of the techno-commercial suitable qualified vendors approved by BHEL and end customer will be considered and opened on a suitable date with due intimation to vendors.	
3	Delivery term: The quote shall be on FOR Panki Project Site Destination basis inclusive of Packing, forwarding, Freight also to yours account. Transit Insurance is under BHEL scope.	
4 (a)	Payment terms: Payment term is 100% direct payment after 60 days from the date of dispatch against site acknowledgement and against 10% PBG valid for the warranty period.	
4 (b)	Payment Terms (New Suppliers) For new suppliers not registered with BHEL, Trichy for the product, Payment shall be made 60 days after receipt and acceptance of materials.	
4 (c)	Loading Criteria No deviation is permitted in payment term.	
5 (a)	Liquidated damages: Delivery of the goods specified in the purchase order should be made within the time prescribed. Failure to dispatch the materials in the time as per the delivery quoted in our Purchase Order would make the supplier liable to an un-conditional LD at the rate of 0.5% of the total order value per week of the delay or part thereof subject to a maximum of 10% of the total order value.	

	In case of PO placements, required documents have to be submitted for approval within 15 days from the date of PO & reply for any further clarification has to be within 7 days. Any delay beyond the above specified period will be considered during LD calculation.	
5 (b)	Loading Criteria: LD / Penalty: Any deviation on BHEL LD / Penalty clause, loading (Basic material Value) will be applied to the extent to which it is not agreed by the bidder.	
6 (a)	Guarantee / Warranty Period: Guarantee clause 24 months from the date of supply or 18 months from the date of actual put in use, whichever is earlier.	
6 (b)	Repair & replacements: Within the guarantee period vendor has to replace / rectify the defective/ damaged items on free of cost within a reasonable time of reporting from our end.	
6 (c)	Loading Criteria: Guarantee / Warranty Period: No Deviation is permitted. If still vendor offered any deviation on the Guarantee / warranty period, it may lead to rejection of offer.	
7 (a)	Taxes & Duties: All Taxes, Duties, Service Taxes etc. payable as extra to the quoted price should be specifically stated in offers along with CST & TIN No / Tariff No. etc., failing which the purchaser will not be liable for payment of such Taxes and Duties. Our TIN No. 33243560005, TNGST No. 3560005, CST. No. 239383 Dt. 11-06-1991 & BHEL ECC No. AAACB4146PXM012, Assessment circle Tiruverumbur. BHEL TRICHY Unit GST NO : 33AAACB4146P2ZL.	
7 (b)	Kindly indicate the GST No of your Firm	
7 (c)	Kindly Indicate the HSN Code for all items	
7 (d)	Kindly indicate the currency quoted.	
7 (e)	Please indicate the applicable GST % (IGST)	
8	Risk purchase: If the supplier fails to deliver the goods within the delivery specified in the Purchase Order, BHEL will be entitled to terminate the contract and to Purchase elsewhere at the risk and cost of the seller either the whole of the goods or any part which the supplier has failed to deliver or despatch within the delivery period mentioned in the Purchase Order.	
9	Delivery Period: 16 weeks from the Documents approval from Customer /BHEL.	
10	LR date will be considered for LD calculation.	
11	Documents are to be submitted along with technical bid (Part-1) 01. Covering letter 02. Unpriced offer. 03. Filled BHEL Terms and condition sheet (Annexure-A)	

	04. Filled Pre-Qualification requirement (Annexure-B) along with supporting documents 05. General arrangement / Schematic drawing showing the critical dimensions with complete bill of materials. All dispatchable components / assemblies shall be indicated in detail. Sub-vendor items' make also shall be indicated in the drawing. Mandatory spares to be marked in GA drawing. 06. Spares list if required for 3 years of trouble free operation along with price. Commissioning / Initial spares shall form part of the base offer. 07. Duly filled-in and signed General Data Sheet (Section 5) for trolley with hoist with all required details. 08. Write up on special features if any. 09. Technical specification for equipment. 10. Catalogues and other details of the product shall be submitted along with the offer. 11. Catalogue's 12. Detailed BOQ of the package. 13. Third party non-disclosure agreement. 14. MSE documents (if applicable) 15. Make In India certification in attached format Documents are to be submitted along with Price bid (Part-2) 01. Priced offer Exclusion: Any exclusion from scope of supply shall be clearly spelt out in the offer itself. Exclusion of major / critical items shall make the offer liable for rejection. Note: All the pages of documents are to be signed and stamped by authorized signatory of the company. Any query during enquiry stage shall be replied within three days failing which offer may be rejected as non-responsive.	
12	Documents to be submitted after placement of order: Bidder to submit all the documents as mentioned in clause 3.2 of MOU specification (MOU/TPBHEL/M_HOIST).	
13	Offer Validity: 120 days minimum from techno commercial bid opening (Part-1)	
14	Painting shall be done as per the applicable painting schedule for this project	
15	Inspection and testing requirements: Inspection and testing requirements are to be carried out as per the specification and BHEL/Customer approved Drawing (All documents shall be submitted within 15 days from the date of PO for our approval), Technical spec & QP and all test certificates are to be submitted in complete set. Inspection notice period: For TPI inspector visit to vendor works, a	

	minimum of 3 working days' notice period for indigenous vendors is required well in advance from the proposed date of inspection.	
16	Packing Requirements: A. Packing should ensure the healthiness of the Equipment including all electrical Accessories which may be stored for longer period (up to 2 years) at Site conditions (open to atmosphere). B. All openings (Fluid, Pneumatic & Electric) shall be firmly capped. C. Items shall be packed in suitable enclosure (to prevent damage/rusting due to Seashore atmospheric conditions) from all four sides and also it should be covered with polythene to make it water proof. D. Packing and struts shall be used to arrest rolling of items and to avoid transit damage. E. Limit switches and such components shall be encapsulated properly with suitable material like Thermocol. F. Suitable arrangement (lugs/hooks) for loading and unloading of the equipment in packed condition at site. Supplier to submit packing procedure complying to above requirements along with technical bid submission for BHEL review.	
17	O & M manuals: BHEL require 1 sets of printed O & M manuals with 3 soft copies in CD-ROM at no cost to be sent to BHEL/ Trichy.	
18	Response to Tenders for Indigenous supplier will be entertained only if the vendor has a valid GST registration number which should clearly have mentioned in the offer. If any specific exemption is available, a declaration with due supporting documents need to be furnished for considering the offer.	
19	Supplier shall mention their GSTN registration number in all their invoices and invoices shall be in the format as specified/prescribed under GST laws. Invoices shall necessarily contain Invoice number (in case of multiple numbering system is being followed for billing like SAP invoice no, commercial invoice no etc., then the Invoice No which is linked/uploaded in GSTN network shall be clearly indicated), item description as per PO, Quantity, Rate, Value, applicable taxes with nomenclature (like IGST, SGST, CGST & UTGST) separately, HSN/ SAC Code, etc.	
20	All invoices shall bear the HSN Code for each item separately (Harmonized System of Nomenclature)/ SAC code (Services Accounting Code).	
21	Invoices will be processed only upon completion of statutory requirement and further subject to following: • Vendor declaring such invoice in Form GST ANX-1 • Receipt of Goods or Services and Tax invoice by BHEL	
22	As the continuous uploading of tax invoices in GSTN portal (in GST ANX-1) is available for all (i.e. both Small & Large) tax payers under proposed new GST Return System, all invoices raised on BHEL may be	

	uploaded immediately in GST portal on despatch of material /rendering of services. The supplier shall ensure availability of Invoice in GST portal before submission of invoice to BHEL. Invoices will be admitted by BHEL only if the invoices are available in GSTN portal (in BHEL's GST ANX-2).	
23	In case of discrepancy in the data uploaded by the supplier in the GSTN portal or in case of any shortages or rejection in the supply, then BHEL will not be able to avail the tax credit and will notify the supplier of the same. Supplier has to rectify the data discrepancy in the GSTN portal or issue credit note or debit note (details also to be uploaded in GSTN portal) for the shortages or rejections in the supplies or additional claims, within the calendar month informed by BHEL.	
24	In cases where invoice details have been uploaded by the vendor but failed to remit the GST amount to GST Department (Form PMT-08 or Form GST RET-01 to be submitted) within stipulated time, then GST paid on the invoices pertaining to the month for which GST return not filed by the vendor will be recovered from the vendor along with the applicable interest (currently 24% p.a) and all subsequent bills of the vendor will not be processed till filing of the GST return by the vendor	
25	In case GST credit is denied to BHEL due to non-receipt or delayed receipt of goods and/ or tax invoice or expiry of timeline prescribed in GST law for availing such ITC, or any other reasons not attributable to BHEL, GST amount claimed in the invoice shall be disallowed to the vendor.	
26	Where any GST liability arising on BHEL under Reverse Charge (RCM), the vendor has to submit the invoices to BHEL well within the timeline prescribed in GST Law, to enable BHEL to discharge the GST liability. If there is a delay in submission of invoice by the vendor resulting in delayed payment of GST by BHEL along with Interest, then such Interest payable or paid shall be recovered from the vendor.	
27	Under GST regime, BHEL has to discharge GST liability on LD recovered from suppliers/contracts. Hence applicable GST shall also be recoverable from suppliers/contractors on LD amount. For this Tax Invoice will be issued by BHEL indicating the respective supply invoice number.	
28	GST TDS will be deducted as per Section 51 of CGST Act 2017 and in line with Notification 50/2018 – Central Tax dated 13.09.2018. GST TDS certificate which will be generated in GST portal subsequent to vendor accepting the TDS deduction in the GST portal, will be issued to the vendor.	
29	A declaration to the effect that all invoice particulars are/were uploaded in the GSTN network/ portal & all tax liability as per GST rules and regulations have been and will be discharged, shall be mentioned in the invoice. If not mentioned in the invoice, a separate declaration shall be submitted as per the requirement of BHEL.	

30	MSE VENDOR: <i>i. If L1 vendor is an MSE vendor entire project package will be ordered on L1 vendor.</i> <i>ii. If a Non MSE vendor is coming as L1, then L1 prices will be counteroffered on MSE vendor who is quoting price within the price band L1+15% and if they are agreeing, purchase order will be awarded for full/complete supply of total tendered value to MSE.</i> <i>iii. If more than one MSE vendors are available in the L1+15% price band then lowest of the MSE vendor will be selected for counteroffering. If lowest MSE vendor is not accepting it will be counteroffered to the next MSE vendor in the price band and so on.</i> <i>iv. Finally if none of the MSE vendor in the price band is not accepting it will be ordered on L1 non MSE vendor.</i> Payment for MSE Indigenous vendors will be as per MSMED Act, 2006 Declaration of UAM number by MSE bidders is mandatory. Failing which, such bidders will not be able to enjoy the benefits as per Public Procurement Policy for MSEs Order, 2012. MSE suppliers can avail the intended benefits only if they submit along with the offer, attested/notarized copies of either 1. EM II certificate having deemed validity (five years from the date of issue of acknowledgement in EM II) or 2. Valid NSIC certificate or EM II certificate along with CA certificate (Format enclosed) applicable for the year, certifying quantum of investment in plant and machinery within the permissible limits as per the act for relevant status (MICRO or SMALL) where the deemed validity of EM II is over. <i>Date to be reckoned for determining the deemed validity will be the last date of technical bid submission (Part 1 in case of two part bid).</i> Non submission of such documents will lead to consideration of their bid at par with other bidders. No benefit shall be applicable for this enquiry, in case of any deficiency in the above required documents or in case the documents are not submitted before price bid opening. If the tender is to be submitted through e-procurement portal, then the above required documents are to be uploaded on the portal even if submitted earlier. Documents should be notarized or attested by a Gazetted officer. <i>Definitions of MSEs owned by SC/ST is under:</i>	
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	• <i>In case of proprietorship firm, proprietor must be SC/ST.</i> • <i>In case of partnership firm, the SC/ST partners must be holding at least 51% shares in the unit.</i> • <i>In case of private limited companies, at least 51% share must be held by SC/ST promoters.</i> Authorised Offices to Issue SC/ST certificate. The caste/Tribe/Community certificate issued by the following authorities in the prescribed form for SCs/STs can be considered. • District Magistrate / Additional District Magistrate / Collector / Deputy Commissioner / Additional Deputy Commissioner / Deputy Collector / 1st class stipendiary magistrate / Sub divisional Magistrate / Taulka Magistrate / Executive magistrate / Extra Assistant commissioner. • Chief Presidency magistrate / Additional chief presidency magistrate/Presidency magistrate. • Revenue Officer not below the rank of thasildar. • Sub-Divisional officer of the area where the individual and / or his family normally resides. <i>To avail the benefits of MSE under SC/ST category, the related documents as stated above should be submitted along with tender documents.</i> <i>In addition Udyam Registration certificate shall be submitted by MSE vendors.</i>	
31	<u>Make in India:</u> For this procurement, the local content to categorize a supplier as a Class I local supplier/ Class II local Supplier/ Non- Local supplier and purchase preference to Class I local supplier, is as defined in Public Procurement (Preference to Make in India), Order 2017 dated 04.06.2020 issued by DPIIT. In case of subsequent orders issued by the nodal ministry, changing the definition of local content for the items of the NIT, the same shall be applicable even if issued after issue of this NIT, but before opening of Part-II bids against this NIT. The local supplier at the time of tender, bidding or solicitation shall be required to provide self-certification that the item offered meets the minimum local content and shall give details of the location(s) at which the local value addition is made.	
32	<u>Fraud Prevention Policy</u> Bidder along with its associate /collaborators /sub-contractors /sub-vendors / consultants / service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website http://www.bhel.com and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice.	

33	<u>Cartel Formation</u> All the firms should desist from forming cartel as the practice is prohibited under Section 3(3) (a) & (d) of the competition Act 2002. If any such instance is observed during this tender will attract disciplinary action as per BHEL policies.	
34	<u>Resolution of Disputes</u> a. If dispute or difference of any kind shall arise between the Purchaser/Consignee and the supplier in connection with or relating to the contract, the parties shall make every effort to resolve the same amicably by mutual consultations. b. Venue of Arbitration: The venue of arbitration shall be the place from where the contract has been issued, i.e., BHEL Trichy. c. Jurisdiction of the court will be from the place where the tender enquiry document has been issued, i.e., Trichy, India	
35	<u>Force Majeure clause</u> a. Notwithstanding the provisions contained in other clauses, the supplier shall not be liable for imposition of any such sanction so long the delay and/or failure of the supplier in fulfilling its obligations under the contract is the result of an event of Force Majeure. For purposes of this clause, Force Majeure means an event beyond the control of the supplier and not involving the supplier's fault or negligence and which is not foreseeable and not brought about at the instance of the party claiming to be affected by such event and which has caused the non – performance or delay in performance. Such events may include, but are not restricted to, wars or revolutions, hostility, acts of public enemy, civil commotion, sabotage, fires, floods, explosions, epidemics, quarantine restrictions, strikes excluding by its employees, lockouts excluding by its management, freight embargoes and Acts of GOD. b. If a Force Majeure situation arises, the supplier shall promptly notify the Purchaser/Consignee in writing of such conditions and the cause thereof within twenty-one days of occurrence of such event. Unless otherwise directed by the Purchaser/Consignee in writing, the supplier shall continue to perform its obligations under the contract as far as reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event. c. If the performance in whole or in part or any obligation under this contract is prevented or delayed by any reason of Force Majeure for a period exceeding sixty days, either party may at its option terminate the contract without any financial repercussion on either side. d. In case due to a Force Majeure event the Purchaser/Consignee is unable to fulfil its contractual commitment and responsibility, the Purchaser/Consignee will notify the supplier accordingly and subsequent actions taken on similar lines described in above sub-paragraphs.	

Note	1. In the event of our customer order covering this tender being cancelled /placed on hold / otherwise modified, BHEL would be constrained to accordingly cancel / hold / modify the tender at any stage of execution. 2. BHEL may negotiate the L1 rate, if not meeting our budget / estimated cost. BHEL may re-float the tender opened, if L1 price is not acceptable to BHEL. Any deviation in specified commercial terms- Annexure-A, will lead to rejection of offer. 3. Any other Techno –Commercial Terms indicated by the vendor in their offer elsewhere will be ignored. BHEL will proceed with tender evaluation as per Annexure A only.
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Annexure-B

Technical Pre-Qualification Requirements: - Manually operated chain pulley block / ratchet lever –Up to 20 T capacity

Bidder should have designed, manufactured, tested and supplied manually operated chain pulley block / ratchet lever of minimum **10 T capacity** which should have been successfully put in use for at least one year in power plant or other industries e.g. refinery/steel/process/commercial etc.

For the above, the Bidder has to submit the following supporting documents meeting above mentioned pre-qualifying requirement:

Minimum one (01) PO copy along with proof for supply.

Instructions to Bidder

- A. Bidder should submit design documents to substantiate technical parameters specified in PQR, if the same is not mentioned in performance certificate/inspection report/ purchase order.
- B. All the above PQR satisfying document submissions should be enlisted and submitted as Annexure-D. (the format given below).
- C. Bidder may also qualify based on the credentials of principal with whom the Bidder is having valid collaboration/licensing agreement to meet the package specific pre-qualifying requirements.
- D. In case the documents submitted for meeting PQR are in language other than English, notarized English translation shall also be submitted.
- E. BHEL reserves the right to assess the capabilities and capacity of the bidder/collaborators to perform the contract, as per BHEL evaluation procedure.
- F. Final acceptance of the bidder is subject to BHEL and end customer's approval to consider in this tender.

Format for submission of credentials as ANNEXURE-D

Sl. No.	Description of Project	Brief Scope of work	P.O. Ref. No. & Date	Purchase order value (Rs).	Date of completion as per P.O.	Performance Certificate enclosed (Y/N)	Remark

MEMORANDUM OF UNDERSTANDING

M/s BHEL
Trichy – 620014

And

For supplying

Manually Operated Handling Equipment
(Item Code : 99 HEM)

MOU NO. : MOU/TPBHEL_ HOIST – REV.00

Memorandum of Understanding (MOU) between BHEL / FB and M/s. xxxxxxxxxxxxxxxx , for supplying Manually operated Handling Equipment (Trolley with Hoists, Ratchet Lever hoist, Under hung Cranes and Interlock mechanisms).

1.0 GENERAL:

- 1.1 This MOU is signed for supplying the Manually operated Hoists as per the agreed standardized specification so that these details need not be discussed again and again for future supplies.
- 1.2 The various aspects covered in this MOU are as follows.
 - 1.2.1 The general points are covered in Section – 1.0 – General.
 - 1.2.2 The specification requirements are covered in Section – 2.0 – Specifications.
 - 1.2.3 The documents to be submitted along with the offer / after placement of Order / along with the hoists are covered in Section 3.0.
 - 1.2.4 The Inspection / Testing and Packing requirements are covered in Section – 4.0
 - 1.2.5 The project specific details / data and if any customer specific requirements shall be covered in Section 5.0 – Project related Information. **DEVIATION ON PROJECT RELATED INFORMATION WILL LEAD TO REJECTION OF OFFER.**
 - 1.2.6 **If any differences are found between the details given in Section 5.0 and other sections, Section 5.0 shall be considered as final and the vendors shall meet this requirement for that particular project.**
- 1.3 Sections 1.0, 2.0, 3.0 and 4.0 are standard and Section 5.0 alone will be furnished along with enquiry to the vendors for their acceptance.
- 1.4 **It is agreed that no deviations will be taken by the vendors while submitting their offers against future enquiries.**
- 1.5 Since the specifications are standardized and an understanding has been reached, the future enquiries will be floated on “SINGLE BID SYSTEM” only. Hence, if any offer is found with deviations, the same will be totally rejected and will not be considered for further evaluation.
- 1.6 The validity of this MOU is for TWO years from the date of signing. After the expiry of the period, the same can be extended further with or without any modifications. However, in case any changes are required, the MOU may be amended before the expiry of the validity.
- 1.7 Pre commissioning spares (if applicable) with price break up as per the list (vide Section 5.0) shall be supplied along with the hoists.
- 1.8 Two years recommended Spares list(vide Section 5.0) with price break up shall be enclosed.

- 1.9 If any special or non-standard tools are required for installation, operation or maintenance, the same shall be supplied along with the hoists.
- 1.10 Trouble-free operation of the equipment shall be guaranteed for a period of 18 months from the date of commissioning OR 24 months from the date of dispatch whichever is earlier.
- 1.11 Vendor has to provide Bank Guarantee for 10% order value (as per BHEL format) valid for a period mentioned in point No.1.10.
- 1.12 Dispatch clearance will be issued along with PGMA with DU Nos. for the ordered items to vendor after the receipt of acceptable Inspection Report . Vendor agreed to mark the PGMA with DU Nos. in the casing of the packing and in the Packing Slip.
- 1.13 Materials shall be dispatched on "Door Delivery with or without Consignee Copy attached basis to avoid demurrage at transporter's godown.
- 1.14 Since the vendors works alone is approved by BHEL, it is agreed the vendor will manufacture this item in their own works only and will not off-load the jobs to any other suppliers without the written approval by BHEL.
- 1.15 All components of the hoists should be packed in such a way that it should not get damaged during transport.
- 1.16 BHEL and the Vendor shall have an involvement which will commence at bid stage and follow through the completion and acceptance, thus ensuring total conformity to Purchaser's requirements.

2.0 Technical Requirements:

- 2.1 *This purchase specification specifies the requirements for design, manufacture, inspection and testing at supplier's works and supply of manually (Hand) operated Trolley With Hoist (TWH), Ratchet lever, Under Hung Crane (UHC) and male & female interlock mechanism. For scope of supply, refer to Annexure II.*
- 2.2 *The trolley with hoist, under hung crane and interlock mechanism will be operating in normal ambient temperature range of 0 - 50 °C. The atmosphere will be with excessive dust, heat, moisture and corrosive fumes.*
- 2.3 *The equipment shall be designed for operation suitable for **OUTDOOR DUTY** without any roofing above the equipment. The trolley with hoist / under hung crane shall be operated on monorail / runway beams of rolled or fabricated beam.*
- 2.4 *Technical parameters for equipment design are furnished in Annexure I. For scope of supply and special requirements refer to Annexure II. Annexure III comprises data*

sheets which are to be duly filled in by the vendor and shall be submitted along with the offer.

This is a general specification dealing with technical requirements of various handling equipment as mentioned above. Contract requirements and special requirements (if any) for a particular project are specified in Section-V of this specification.

2.5 Codes & Standards:

2.5.0 *The equipment shall comply with the latest revisions of the following standards.*

2.5.1 *IS 3832 Specification for hand operated chain pulley block.*

2.5.2 *IS 6216 Specification for short link chain grade T (8) calibrated for pulley blocks and other lifting appliances.*

2.5.3 *IS 15560 Specification for point hook with shank up to 160 tonnes.*

2.5.4 *IS 807 Design, manufacture, erection and testing (Structural portion) of cranes and hoists.*

2.5.5 *IS 3681 General plan for spur gear and helical gears.*

2.5.6 *IS 2062 Weldable structural steel.*

2.5.7 *IS 2429(Part 1) Round steel short link chain (Electric butt welded), Grade L (3)*

2.5.8 *IS 1024 – Code of practice for use of welding in bridges and structures subject to dynamic loading.*

2.5.9 *IS 2004 - Carbon steel forgings for general engineering purposes*

2.5.10 *IS 4368 – Alloy steel billets, blooms, and slabs for forging for general engineering purposes.*

2.6 Technical requirements

2.6.1 *Design and manufacture of under hung crane and chain pulley block with trolley and male and female interlock mechanism shall be of consistent capacity, lift, headroom, span, overhang and any other parameters as specified in the annexure-I.*

2.6.2 *While designing the under hung crane, chain pulley block with trolley and male & female interlock mechanism, care shall be taken for the following features:*

- ❖ *Minimum effort to lift and move the under hung crane & chain pulley block with rated safe working load.*
- ❖ *Self-braking systems for holding the load and stop the crane in any position.*
- ❖ *Compact design and even loading of bearings.*
- ❖ *Ease of installation and maintenance.*
- ❖ *Interlock mechanism shall be capable of taking the axial load due to the movement of equipment with rated safe working load.*

- 2.6.3 *All materials used for construction of different components shall individually conform to standards mentioned in clause 2.5*
- 2.7.0 **Hand operated chain pulley block, ratchet lever & under hung crane.**
- 2.7.1 **Frame:** *The Frame, crane girder and end carriage shall be designed for proper strength built from steel plates with bolted/welded construction (recommended material: IS 2062).*
- 2.7.2 **Gear & Pinions:** *Hand operated under hung crane and chain pulley block with trolley shall be supplied with helical / spur / worm gear. The gear shall be designed for surface durability and proper strength such as to afford efficient operation through out the period guaranteed by the manufacturers. In case of enclosed gearing, means shall be provided for ample lubrication. Such lubrication points are to be indicated along with specification of lubricant, market trade names, quantity of lubricant requirement and frequency of lubrication. Material of construction shall be conforming to relevant Indian standard or equivalent and casehardened. Hardness for CT & LT shall be minimum 250 BHN for pinions and 200 BHN for gears. Hardness for hoisting shall be in the range of 285 to 300BHN for pinions & minimum 250BHN for gears. However vendor shall maintain and ensure that gear hardness is always less than pinion hardness by at least 35BHN. Helical / spur gears only shall be used for hoists, CT & LT. All gears & pinions shall be examined by LPI / MPI for surface cracks after case hardening.*
- 2.7.3 **Gear Housing:** *Gear housing assembly consists of a fabricated housing in which gears are assembled (worm-worm wheel in case of worm wheel type and spur gear in case of spur gear type)*
- 2.7.4 **Load Brakes:** *Hand operated under hung crane and chain pulley block with trolley shall be provided with an automatic mechanical load brake, Ratchet & pawl type, which will prevent self lowering of the load and arrest and sustain load in all working positions. The load brake shall also allow smooth lowering of the load without serious overheating which may impair efficient working of the block.*
- The pawl and ratchet shall be made of steel and hardened and tempered to provide satisfactory degree of wear resistance. Hardness shall be minimum 375BHN for Pawl & minimum 300BHN for Ratchet. However vendor shall maintain and ensure that ratchet hardness is always less than pawl hardness by at least 50BHN. Material shall be of 45C8 - IS2004 & IS 4368 or equivalent. Supplier shall indicate material specification and provide material test certificates for compliance.*
- 2.7.5 **Bearing:** *Only antifriction bearings of reputed make shall be used. Supplier shall specify the make of the bearings used in the offer (make shall be of TATA, SKF, NBC, FAG, PRECISION).*

- 2.7.6 **Hooks:** Hooks shall meet the dimensional, material, testing & inspection requirement of IS 15560. The hook shall be provided with standard depress type safety latch and swivel thrust bearings with hardened race. Lugs for fixing safety latch shall be either forged along with the hook or clamp type latch with lugs shall be provided. Welding of lug is not permitted. Locking arrangement shall be provided to avoid unscrewing of the hook in service. Material of hook shall be conforming to IS 2004 – 35C8 or equivalent (Tensile strength shall be in the range of 50 to 62 Kg/Sq.mm) and made by controlled grain forging and normalised. All the hooks shall be tested for twice the safe working load. After the proof load all hooks shall be examined by LPI / MPI & UT (UT required for hooks >5.0T capacity) for cracks. The hook shall not distort or fracture. Ball & roller bearings shall not be used in these hooks. The bottom hook block shall be provided with thrust bearing to enable its free swivelling in the loaded condition without twisting the load chain.
- 2.7.6.1 Suspension fittings other than hook shall be of sufficient strength to afford a static factor of safety of not less than 4(four).
- 2.7.7 **Load Chain:** The link chain shall be of minimum GRADE 80 conforming to IS: 6216. The chain shall be pitched and polished. The chain shall be coated with rust preventive oil. All chains shall be tested for 2 times of SWL and other testing shall be as per IS 6216.
- 2.7.8 **Hand Chain:** The hand chain shall be of GRADE L (3) and conform to IS: 2429 (Part1). The chains shall be pitched and polished. The chain link dimensions shall be 6.0 mm. conforming to IS 2429 (Part1). The length of chain shall be such that the lowest point of loop will be 0.4 meter above the operating level. The chain shall be coated with rust preventive oil.
- 2.7.9 **Load Chain Wheel:**
Wheel for load chain shall be made of material suitable for use with load chain employed and be of adequate strength and shall be designed to ensure effective operation.
- 2.7.9.1 **Hand Chain Wheel:**
Wheel for hand chain shall be of malleable cast iron / plate with suitable thickness to ensure effective operation and shall be provided with flange.
- 2.7.9.2 The chain guide shall be so designed that the chain will neither come out of the wheel during use nor get caught between guide & the wheel.
- 2.7.10 **Idler wheels:** The chain pulley blocks shall be provided with idler wheels so shaped as to avoid twisting of the chain when passing around.
- 2.7.11 **Wheels:** Wheels for under hung crane and trolley wheels for chain pulley block shall be spur geared type, cast / forged, 4 wheeled, driven by hand chain.

2.7.11.1 Trolley / under hung crane wheels shall be designed to suit the monorail / runway beam size and profile decided by purchaser (which will be furnished during drawing approval stage).

2.7.11.2 Shall be made out of forged or low carbon steel/cast steel with heat treated to minimum 200BHN hardness. Cast iron grade 20 with hardness of 200 BHN is also acceptable. The drive gears if any integral with the wheel shall be of the same material and hardness. Wheels for under hung crane and trolley wheels for hoists shall be spur geared type, cast / forged 4 wheeled.

2.7.12 Trolley:

The trolley for chain pulley block shall be of spur geared type, fabricated construction, 4 wheeled, driven by hand chain and shall have provision for mounting the chain pulley block.

2.7.13 End Carriage:

Shall be of 4 wheeled spur geared type and fabricated construction. Suitable wheelbase shall be provided. End carriages shall be designed to suit the runway beam size. (Which will be furnished by purchaser during drawing approval.) End carriages shall be connected with crane girder by welding or by fasteners (For ease of transportation, if welding required, the same shall be done at site by purchaser).

2.7.14 Ratchet Lever:

The ratchet lever consists of toothed wheel, pawl, catch etc., The pawls shall be of strength to arrest the full load from lowering due to gravity. The relative width and positioning of the ratchet wheel and the pawl shall be such as shall ensure full engagement irrespective of wear of the friction faces. The pawl and the ratchet shall be made of steel, hardened and tempered or given an equivalent treatment to provide satisfactory degree of wear resistance together with toughness. The hardness of the pawl tip shall not be less than 40HRC and that of ratchet not less than 30HRC. The pawl shall engage with the ratchet wheel either by means of a spring other than a tension spring or by some other equally effective means.

The pawl shall be so positioned that it engages the ratchet wheel under gravity should it operating mechanism fails. Adequate arrangements shall be made to ensure that the pawl does not seize on the pawl pin.

2.7.15 Crane Girder:

Crane girder shall be of rolled section. Fabricated beam and welded beam shall not be used for this purpose unless otherwise specified by the purchaser for special cases. For such cases, refer annexure - II to this specification for details. Camber /

deflection shall be within span/1000. Allowable bend (straightness) shall be 1mm/metre and maximum bend shall not exceed 6mm of total span.

2.7.16 Suitable anti tilt/topple or roller arrangement shall be provided between runway beam and crane girder to avoid toppling of crane while the hoist is at overhang side.

2.8.0 Male & Female interlock mechanism

2.8.1 Male & female interlock mechanism shall be designed to transfer the trolley with hoist with rated safe working load from master crane to slave crane or master crane to fixed monorails and vice versa. The interlock mechanism shall be capable of withstanding the forces even when one of the cranes is being operated by mistake. The cross travel stoppers should give way to the hoist when interlock mechanism is coupled.

2.8.2 Dimensional tolerance for the male & female component of the interlock mechanism shall be very close which will ensure proper locking (without play) and smooth transfer of trolley from one crane to the other.

2.8.3 Hand wheel with chain of suitable length shall be provided to operate the male & female mechanism manually from the operating floor.

2.8.4 Male and female interlock mechanism shall be designed suitably to take the axial load and safe working load.

2.8.5 Grease nipples shall be provided at all lubrication points & shall be easily accessible. Frequency of lubrication shall be minimum.

2.8.6 Fasteners shall be made of precision grade high tensile steel (Grade 8.8 class) and galvanised. Load bearing fasteners shall be suitably designed & machined. Vendor shall furnish material / tensile strength for special fasteners in the arrangement drawing.

*2.9 **Welding:** All welding shall conform to IS 1024 and welders shall be qualified to AWS D1.1 / ASME -Section IX.*

2.10 Name Plates:

2.10.1. Nameplates shall be provided with non-corrosive material

2.10.2. Nameplates shall have details of the equipment, model no., type, capacity, lift, span, and motor & brake details.

2.10.3 All lubrication points shall be provided with nameplates.

3.0 DOCUMENTS BY VENDOR

3.1 Along with the offer:

- 3.1.1 Data sheets for Trolley With Hoist & Under Hung Crane (Annexure III)
- 3.1.2 Technical specification for equipment
- 3.1.3 Quality plan & typical arrangement drawing
- 3.1.4 Deviation: No deviation will be entertained on the MOU specification.
- 3.1.5 Exclusion: Any exclusion from scope of supply shall be clearly spelt out in the offer itself. Exclusion of major / critical items shall make the offer liable for rejection.

3.2 After placement of order:

- 3.2.1 Quality Plan is to be submitted by vendor for Purchaser and End user's approval.
- 3.2.2 Dimensional drawings for approval.
- 3.2.3 Data sheet for hoists and cranes for Purchaser's / End user's approval.

3.3 During supply:

- 3.3.1 Performance test certificates for TWH, UHC, Safety devices and Chain.
- 3.3.2 Physical, Chemical, hardness and NDE test certificates shall be provided wherever applicable for trolley / crane wheels, load chain, hand chain, pulleys, hook, gears, pinions, shafts and other materials.
- 3.3.3 Other certificates either for sub-vendor's manufacturing or bought-out items shall also be furnished if applicable.

3.4 Drawings & O & M Manuals:

- 3.4.1 The drawings furnished with the offer shall clearly indicate the items (bill of materials) that go to make the trolley with hoist and / or under hung crane. The drawings shall clearly indicate the weight particulars of such items / sub assembly that will be despatched as loose items in the packing cases.

The bill of material shown in the drawing shall match with that of the despatchable unit as indicated in the packing slip. The drawing shall be prepared in AUTOCAD and vendor shall forward both hard copies (3 numbers each) and floppy (Copied with drawing files) to the purchaser.

- 3.4.2 Performance and load test certificate shall be submitted along with the supply.
- 3.4.3 Catalogues and other details of the product shall be submitted along with the offer.

3.5 O & M Manuals

- 3.5.1 *Number of copies required is 3 sets of hard copies and 3 nos. soft copies in CDs..*
- 3.5.2 *Manuals should be in printed form only (Xerox copies are not acceptable).*
- 3.5.3 *The size of manuals should be in correct A4 size with drawings not bigger than A3 size. Large size drawings (greater than A3 size) should be reduced to A3 size and inserted (Drawings shall be of laser prints or printed. Blue prints are totally not acceptable).*
- 3.5.4 *Spiral or comb bound copies should be totally avoided.*
- 3.5.5 *If manuals are supplied in folders, the folder should have 3-hole punching.*
- 3.5.6 *O & M manuals, should be submitted to BHEL / Tiruchirappalli prior to despatch of the equipment.*
- 3.5.7 **Manual, generally should contain the following:**
 - 3.5.7.1 *Data sheet*
 - 3.5.7.2 *Brief description*
 - 3.5.7.3 *Operation*
 - 3.5.7.4 *Maintenance (including lubrication, where necessary) and service, recommended spares for 2/3 years trouble free service.*
 - 3.5.7.5 *Trouble shooting*
 - 3.5.7.6 *Assembly drawings with part list, dimensional drawings and other applicable drawings.*
- 3.5.8 *Manuals should pertain only to the types or model of the equipment supplied for a particular order.*
- 3.5.9 *It is preferred if the O & M manuals are prepared in electronic media and copied on a floppy and submitted along with hard copies.*

3.6 Guarantee Required:

18 months from the date of commissioning or 24 months from the date of supply.

3.7 Packing & Identification

- 3.7.1 *All packaging shall be done in such a manner as to reduce the volume. The equipment shall be dismantled into major components suitable for shipment and shall be properly packed to provide adequate protection during shipment. All assemblies shall be properly match marked for site erection.*

- 3.7.2 *Attachments, spare parts of the equipment and small items are to be packed separately in small cases. Each item shall be tagged with identification of the main equipment number, item denomination, and reference number of the respective assembly.*
- 3.7.3 *Detailed packing list in water- proof envelope shall be inserted in the package together with equipment.*
- 3.7.4 *Each equipment shall have a name- plate giving the salient equipment data, make, year of manufacture, equipment number followed by the firm, manufacturers name plate. Each hoist will have a name- plate fixed on both faces in such a manner that the safe working load can be clearly seen from the operating floor.*

3.8 Spare Parts

- 3.8.1 *Mandatory spares: The offer shall include list of recommended spare parts with itemised price, for 2/3 years operation of the equipment Proper coding and referencing of spare parts shall be done so that later identification with appropriate equipment will be easier.*
- 3.8.2 *Commissioning spares: The offer shall include the required commissioning spares as part of the main package. The cost of such spares included may be separately indicated in the offer.*

4.0 INSPECTION, TESTING & PACKING:

- 4.1 *Purchaser's (BHEL) and end user's (BHEL's customer) representative shall have the access to the works of vendor at all reasonable times for the purpose of witnessing the purchased equipment being tested.*
- 4.2 *Vendor shall provide a **Quality Plan** along with the offer for review and approval by Purchaser or end user.*
- 4.3 *Each chain pulley block with trolley shall be subjected to 1.5 times the safe working load for a lift of minimum one metre, which shall ensure that every part of the block mechanism and each tooth of the gears come under load. The trolley with load shall be tested for smooth operation for cross travel without any problems.*
- 4.4 *All visual examination after operational proof tests for deformation, cracks etc, shall be checked by Purchaser or it's appointed representative for all 100% cases.*
- 4.5 *Type test (static loading) shall be conducted at 200% safe working load. Static tensile loading shall be done once in a year or if there is a design change which ever is earlier. Records shall be maintained by the supplier for this and a copy of the same shall be furnished.*

- 4.6 *All under hung crane shall be tested for 125% of safe working load. All visual examination after operational proof test for deformation, cracks etc, shall be checked by Purchaser or their appointed representative for all 100% cases.*
- 4.7 *Each under hung crane shall be subjected to 1.25 times the safe working load at the middle of the crane girder. The trolley and chain pulley block with load shall be tested for smooth operation for cross travel on the crane girder without any problems. Wheel matching of the crane with runway beam shall be checked with 125% safe working load. Allowable deflection is span / 1000 at SWL.*
- 4.8 *Certificate of test and examination shall be issued for the chain pulley blocks with trolley and under hung crane individually giving the following information.*
- 4.8.1 *Safe Working Load*
- 4.8.2 *Range of Lift*
- 4.8.3 *Load chain & hand chain size and grade*
- 4.8.4 *Span of the crane*
- 4.8.5 *Over hang on either side*
- 4.8.6 *Proof load applied.*
- 4.9 ***Hooks:***
- 4.9.1 *Raw material test certificate shall be submitted from manufacturer.*
- 4.9.2 *Proof load at 200% of safe working load on each hook irrespective of capacities.*
- 4.9.3. *Chemical composition and destruction test shall be carried out on one sample per batch.*
- 4.4.4 *After proof load test, hook shall be examined for cracks, deformation, flaws and other defects with LPI / MPI. Hooks above 5T capacity shall be examined with UT. Acceptance norms for LPI / MPI: No linear indications or crack are acceptable while carrying-out LPI / MPI. For UT, it shall be as per ASME - Sec. VIII - Division 2. - AM 203.2.*
- 4.10 ***Load Chain:***
- 4.10.1 ***Breaking Test:***
- First few links of the lot (Refer IS 5616) shall be tested for minimum breaking load (400% SWL) after manufacture, heat treatment and calibration.*
- The sample shall first be subjected to proof loading and then shall be tested to destruction and breaking load.*
- 4.10.2 ***Rolling Over Wheel Test:***
- Full length of chain after proof loading shall be passed over actual load chain wheel.*

- 4.11 *All structural welds, gears, castings/forging shall be examined by MPI / LPI for cracks, surface defects. Acceptance norms for LPI / MPI: No linear indications or crack are acceptable while carrying-out LPI / MPI. All butt welds shall be tested radiography and acceptance norms shall be as per AWS D1.1/ ASME -Section IX.*
- 4.12 ***Performance test for Under Hung Cranes, Chain pulley blocks & Ratchet lever***
- 4.12.1 *Under hung crane shall be checked for smooth running of chain pulley block with trolley on crane girder and crane movement shall be checked with 125% safe working load on runway beam at site by purchaser / end user under vendor's supervision and if found defective, the same shall be replaced at free of cost by vendor.*
- 4.12.2 *Chain Pulley block with trolley and under hung crane shall be checked for brake system to arrest the movement and sustain the load at any working positions.*
- 4.12.3 *Chain pulley block with trolley shall be checked for smooth running on monorail with load above 2meters from ground.*
- 4.12.4 *Wheels shall be checked for matching with monorail / runway beam.*
- 4.12.5 *Ratchet lever shall be checked for its smooth operation to the rated capacity*
- 4.12.6 *Equipment shall be provided with nameplates consisting of:*
- a) *Description*
 - b) *Serial No.*
 - c) *Manufacturer*
 - d) *Type*
 - e) *Capacity & size.*
 - f) *Year of manufacture.*

4.13 **Protection & Painting**

4.13.1 ***Surface Preparation:***

The surfaces to be coated shall be free from contamination, weld slag and spatter shall be removed. Surface defects shall be removed by suitable methods.

Sharp edges shall be smoothened by grinding. Prior to surface preparation oil, grease, drilling / cutting emulsions and preservative agents shall be carefully removed by suitable solvents. The surface shall be carefully dried with clean cloths to prevent the dissolved impurities from spreading over the entire surface. The surface shall be cleaned by wire brush and shot blasting if required. Proper adhesion of paint to the surface shall be ensured.

4.14 Painting

4.14.1 Primer: 2 coats of red oxide with 40 microns DF Thick minimum.

4.14.2 Finish Coat: 2 Coats of enamel paint with each 40 microns DF Thick minimum.

4.14.3 Finish paint colour shall be of Black for HOOK and Golden yellow for CHAIN PULLEY BLOCKS, Ratchet lever and UNDER HUNG CRANES.

4.14.4 Non-ferrous material, austenitic stainless steels, plastic or plastic coated materials, insulated surface of equipment and pre painted items need no painting.

4.14.5 All the rotary parts inside shall be thoroughly greased.

4.14.6 All the machined parts shall be covered with water- proof packing material and packed in wooden boxes to avoid any damage during transit.

4.14.7 Machined and bearing surfaces shall be protected with varnish or thick coat of grease.

4.14.8 For special painting if any, refer Section-5 to this specification.

5.0 PROJECT RELATED INFORMATION

Project Name : Panki TPS –660 MW (1728)

Enquiry No. / P.O.No. :

Sl.No.	Description	Specification	Vendor Confirmation Yes / No
5.1	Hoist Parameter	N/A	
5.2	Painting schedule & Special requirements	As per approved Painting Schedule attached	
5.3	Spares		
5.3.1	Commissioning Spares	Vendor to specify	
5.3.2	2 Years recommended spares	Vendor to specify	
5.4	Data Sheet		
5.5	Data Sheet	(Annexure-III) Vendor to fill & submit	
5.6	G.A. Drawings (for hoists, cranes, CPB, Ratchet lever hoist, etc.)	Vendor to submit	

Note: 1. Deviation in the above requirements shall reject the offer.
2. If required, please add more sheets.

Sl. No.	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate Coat		Finish coat			Total DFT μm (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
8 PS1A	Components uninsulated < 95° C –Other than components in Sl.No.3. (bid resolutions annexure – I C (SG quality), Sl. No. 2.) Miscellaneous and casing sheets 04-147,547; 07- 409,431,460,461,462,502,503,509,531,560; 12-506,906,907;17-919;21-601,604,606; 24-350,351,354,801,804,806, 24-810,817,825,826,835,841,855, 24-950,955,960;30-233,234;36-611,621; 39-302; 45-806; 95-088; 97-585;24-855; Spares: 41-997;42-997;43-997;45-997; 47-997;65-997;67-997; Fuel firing: 41-350,390,500; Steam blowing piping 42-001,002,005,010,046,152; 42-157; 43-004,104, 200; 45-200,801, 858; 47- 261,263,858; Duct plates, expansion joints: 48-911,912; \$ Handling Equipments: 99-099,100,300,400,502,600; Coal Feeding 65-736;67-204,272,276,283,801,802,803;95-088,089,091,485;96-186;97-585,591,592; Seal air ducting: 43-005, 105; Cold Air duct: 48-141;	SSPC-SP3/ Power Tool Cleaning	Red Oxide Zinc Phosphate Primer (Alkyd Base) to IS 12744 DFT= 30 μm per coat	1	--	--	Synthetic Enamel paint (Long Oil Alkyd) to IS 2932 DFT= 20 μm per coat	2	Smoke Grey Shade No: 692 of IS5	70

\$ - Final Shade is Golden yellow for Under hung crane, Chain Pulley Block, Ratchet Lever and Trolley with hoist. Black shade for Hook.

5.0 PROJECT RELATED INFORMATION

Project Name : Panki TPS –660 MW (1728)

Enquiry No. / P.O.No. :

Sl.No.	Description	Specification	Vendor Confirmation Yes / No
5.1	Hoist Parameter	N/A	
5.2	Painting schedule & Special requirements	As per approved Painting Schedule attached	
5.3	Spares		
5.3.1	Commissioning Spares	Vendor to specify	
5.3.2	2 Years recommended spares	Vendor to specify	
5.4	Data Sheet		
5.5	Data Sheet	(Annexure-III) Vendor to fill & submit	
5.6	G.A. Drawings (for hoists, cranes, CPB, Ratchet lever hoist, etc.)	Vendor to submit	

Note: 1. Deviation in the above requirements shall reject the offer.
2. If required, please add more sheets.

Sl. No.	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate Coat		Finish coat			Total DFT μm (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
8 PS1A	Components uninsulated < 95° C –Other than components in Sl.No.3. (bid resolutions annexure – I C (SG quality), Sl. No. 2.) Miscellaneous and casing sheets 04-147,547; 07- 409,431,460,461,462,502,503,509,531,560; 12-506,906,907;17-919;21-601,604,606; 24-350,351,354,801,804,806, 24-810,817,825,826,835,841,855, 24-950,955,960;30-233,234;36-611,621; 39-302; 45-806; 95-088; 97-585;24-855; Spares: 41-997;42-997;43-997;45-997; 47-997;65-997;67-997; Fuel firing: 41-350,390,500; Steam blowing piping 42-001,002,005,010,046,152; 42-157; 43-004,104, 200; 45-200,801, 858; 47- 261,263,858; Duct plates, expansion joints: 48-911,912; \$ Handling Equipments: 99-099,100,300,400,502,600; Coal Feeding 65-736;67-204,272,276,283,801,802,803;95-088,089,091,485;96-186;97-585,591,592; Seal air ducting: 43-005, 105; Cold Air duct: 48-141;	SSPC-SP3/ Power Tool Cleaning	Red Oxide Zinc Phosphate Primer (Alkyd Base) to IS 12744 DFT= 30 μm per coat	1	--	--	Synthetic Enamel paint (Long Oil Alkyd) to IS 2932 DFT= 20 μm per coat	2	Smoke Grey Shade No: 692 of IS5	70

\$ - Final Shade is Golden yellow for Under hung crane, Chain Pulley Block, Ratchet Lever and Trolley with hoist. Black shade for Hook.

Annexure-III to Specification MOU/TPBHEL/M HOIST - Rev. 00

Project :Panki TPS (1x660 MW)

(Cust.no. 1728)

Enquiry no:

The following data sheet is to be filled by the vendor and submitted along with the offer. This data sheet shall form part of ordering specification and shall be approved by Engineering On acceptance of the offer.

Technical Data sheet for Hand operated Handling equipment

1.0	Under hung crane					
1.1	Capacity - in tons					
1.2	Span - in m.					
1.3	Overhang on either side - in mm.					
1.4	Runway beam size (User / Purchaser)					
	Will be furnished during vendor drawing approval.					
1.5	Operating floor - in m.					
1.6	Wheels					
1.6.1	Wheel shape whether match with runway beams	Yes / No				
1.6.2	Wheel material					
1.6.3	Wheel diameter - in mm.					
1.6.4	Wheel base - in mm.					
1.7	Wheel bearing					
1.7.1	Type					
1.7.2	Size					
1.7.3	Make					
1.8	Shaft					
1.8.1	Material					
1.8.2	Hardness					
1.9	Gears / Pinions					
1.9.1	Material					
1.9.2	Hardness					
1.10	Crane girder					
1.10.1	Type	Single / Double / Box				
1.10.2	Size					
1.10.3	Material					
1.11	End stopper					
1.11.1	Provided	Yes / No				
1.11.2	Type					
1.12	Weight of the crane - in Kgs.					
1.13	Overall dimensions of crane					

Vendor Name :

Signature :

Date :

Annexure-III to Specification MOU/TPBHEL/M HOIST - Rev. 00

Project :Panki TPS (1x660 MW)

(Cust.no. 1728)

Enquiry no:

1.14	Clearance between Runway beam bottom & Crane girder top - in mm.				
2.0	Chain Pulley Block/ Manual Hoist				
2.1	Capacity - in tons				
2.2	Lift - in m.				
2.3	Headroom - in mm.				
2.4	Operating floor - in m.				
2.5	Approximate weight - in Kgs.				
2.6	Overall dimensions of Trolley with hoist				
2.7	No. of Falls				
2.7	Trolley wheels				
2.7.1	Wheel diameter - in mm.				
2.7.2	Material				
2.7.3	Hardness				
2.7.4	Quantity				
2.8	Load chain				
2.8.1	Link diameter				
2.8.2	Material				
2.8.3	Ultimate tensile strength in kg/sq.mm.				
2.9	Hand chain				
2.9.1	Size				
2.9.2	Material				
2.10	Ratchet				
2.10.1	Material				
2.10.2	Hardness				
2.11	Pawl				
2.11.1	Material				
2.11.2	Hardness				
2.12	Gears & Pinions for Hoisting				
2.12.1	Material				
2.12.2	Hardness				
2.13	Gears & Pinions for Cross travel				
2.13.1	Material				
2.13.2	Hardness				
2.14	Hook				
2.14.1	Material				
2.14.2	Hardness				
2.14.3	Tensile strength in kg/sq.mm.				
2.14.4	Safety latch provided in the hook(Yes / No)				

Vendor Name :

Signature :

Date :

	BHARAT HEAVY ELECTRICALS LIMITED TIRUCHIRAPPALLI - 620 014, INDIA. QUALITY ASSURANCE DEPARTMENT	
	STANDARD QUALITY PLAN FOR MANUAL HANDLING SYSTEM	
SQP:SD:34 Rev No: 00		Page: 1 of 3

Prepared By Quality Assurance	VENKANNA RUPANI <i>R. Venkanna</i> 18/05/2019
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Reviewed by	Signature
Quality Assurance G. PANNEER SELVAM	<i>[Signature]</i> 18/05/19
Engineering G. SARAVANA KUMAR	<i>[Signature]</i> 18.05.2019
Materials Management / BOI PRATEEK KUMAR JAIN	<i>[Signature]</i> 18/05/2019
Quality Control R. DHARMAR	<i>[Signature]</i> 18/05/19

Rev No	Date	Approved by	Signature
00	18/05/2019	AGM / QA & BE	<i>[Signature]</i> 18/5/19

Record of Revisions

Rev No	Details of Revision	Remarks
00	Fresh Issue	

Proprietary Data - For Internal Use Only

		MANUFACTURER'S NAME & ADDRESS: BHEL: TIRUCHIRAPPALLI APPROVED SUPPLIERS		STANDARD QUALITY PLAN						QWI NO: SQP:SD:34 REV NO: 00 DATE: 18/05/2019 PAGE: 2 OF 3				
				PRODUCT: MANUAL HANDLING SYSTEM										
				SUB-SYSTEM :Steam Generator and Auxiliaries										
SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS	
1	2	3	4	5	M	C/N	7	8	9	D*	M	C	N	11

1.0 RAW MATERIALS & BOUGHT OUT ITEMS													
1.1	Plates/Rolled Sections for Frames, Crane Girder, End Carriage	Chemical & Mechanical Properties	B	Review of Documents	100%	100%	BHEL Approved Drawings / Data Sheet, BHEL Specification & Relevant Applicable Standard	Lab Report	√	P	V	-	IS 2062
1.2	Gear/Pinion	Chemical & Mechanical Properties	B	Review of Documents	100%	100%	BHEL Approved Drawings / Data Sheet, BHEL Specification & Relevant Applicable Standard	Lab Report	√	P	V	-	IS 2004 Cl 4 or 5 (45C8 / 55C8)
1.3	Pawl/Ratchet	Chemical & Mechanical Properties	B	Review of Documents	100%	100%	BHEL Approved Drawings / Data Sheet & BHEL Specification	Lab Report	√	P	V	-	IS 2004 Cl 4 (45C8)
1.4	Load Chain	Calibration, Proof Load, Brake Load, Rolling over test	B	Review of Documents	100%	100%	BHEL Approved Drawings / Data Sheet, BHEL Specification & Relevant Applicable Standard	Mfg/TC	√	P	V	-	BIS IS/ISO: 3077; BIS IS/ISO: 1834
1.5	Hand Chain	Calibration	B	Review of Documents	100%	100%	BHEL Approved Drawings / Data Sheet & BHEL Specification	IR	√	P	V	-	Roll on Hand wheel.
1.6	Hooks as per IS-15560	Chemical & Mechanical Properties	B	Review of Documents	1 Sample per Lot		BHEL Approved Drawings / Data Sheet & BHEL Specification	Mfg/TC	√	P	V	-	IS: 2004 Cl 3A
1.7	Interlock Mechanism, if applicable	Dimensions & Locking Mechanism	B	Review of Documents	100%	100%	BHEL Approved Drawings / Data Sheet & BHEL Specification	Mfg/TC	√	P	V	-	
1.8	Trolley Wheel, if applicable	Chemical & Mechanical Properties	B	Review of Documents	100%	100%	BHEL Approved Drawings / Data Sheet, BHEL Specification & Relevant Applicable Standard	Lab Report	√	P	V	-	
1.9	Bearings & Fasteners	Type & Make	B	Review of Documents	100%	100%	BHEL Approved Drawings / Data Sheet & BHEL Specification	IR/COC	√	P	V	-	
2.0 INPROCESS CONTROL													
2.1	Welding Qualifications (if welding is involved)	Procedure	Major	Documents Review	100%	100%	AWS D1.1 / ASME Sec IX	PQR & WPS	√	P	V	V	
		Personnel	Major	Documents Review	100%	100%	AWS D1.1 / ASME Sec IX	WPQ	√	P	V	V	
2.2	Gear Cutting	Gear teeth dimensions & Hardness	B	Measure	100%	10%	As per BHEL Approved Drawing & BHEL Specification	IR	√	P	V	-	
2.3	Machining	Dimension	B	Measure	10%	10%	As per BHEL Approved Drawing & BHEL Specification	IR/COC	√	P	V	-	
2.4	Assembly	Visual and Dimensional	B	Visual	10%	10%		IR/COC	√	P	V	-	

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;
**** M:** MANUFACTURER, **C:** BHEL QC/BHEL AIA, **N:** CUSTOMER; **P:** PERFORM. **W:** WITNESS, **V:** VERIFICATION; **CLASS:** A - CRITICAL; B - MAJOR; C - MINOR;
MTC- Manufacturer's Test Certificate; IR- Inspection/Test Report; COC: Certificate of Compliance; (R): Routine test; (I)/(I's): Type test.

		MANUFACTURER'S NAME & ADDRESS: BHEL, TIRUCHIRAPPALLI APPROVED SUPPLIERS		STANDARD QUALITY PLAN						QWI NO: SQP:SD:34 REV NO: 00 DATE: 18/05/2019 PAGE: 3 OF 3				
				PRODUCT: MANUAL HANDLING SYSTEM										
				SUB-SYSTEM :Steam Generator and Auxiliaries										
SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS	
1	2	3	4	5	M	C/N	7	8	9	D*	M	C	N	11
2.5	Butt welds	Soundness	B	RT	100%	100%	AWS D1.1 / ASME Sec IX	IR	√	P	V	-		
2.6	All structural & fillet welds and gears	LPI/MPI	B	NDE	100%	100%	ASTM E165/ E709	No relevant indication & Cracks	IR	√	P	V	-	
2.7	Hooks, IS-15560	a) Dimensions & Proof Load Test	B	Measurement & Testing	As per Standard		IS- 15560	BHEL Specification	Mfg/TC	√	P	V	-	*After proof load test.
		b) LPI/MPI*	B	NDE	100%	100%	ASTM E165/ E709	No relevant indication & Cracks	IR	√	P	V	-	
		c) UT* on Hooks > 5T	B	NDE	100%	100%	ASTM A388	ASME Sec VIII Div 2 Cl 3.3.4	IR	√	P	V	-	
3.0 FINAL ASSEMBLY & TESTING														
3.1	Final Inspection	Load Test	B	Testing & Measurement	100%	One per each type & capacity	IS: 3832; BHEL Approved Data Sheet & BHEL Specification	Mfg/TC	√	P	W	-		
		Functioning of Brake system & smooth running	B	Testing & Visual	100%		IS: 3832; BHEL Approved Data Sheet & BHEL Specification	Mfg/TC	√	P	W	-		
		Capacity/Lift	B	Testing & Measurement	100%		IS: 3832; BHEL Approved Data Sheet & BHEL Specification	Mfg/TC	√	P	W	-		
4.0 PAINTING & PACKING														
4.1	Surface Cleaning & Protection	Surface condition & Painting – Shade, DFT	B	Visual	100%	10%	As per PO & BHEL Specification	IR	√	P	V	-		
4.2	Identification & Packing	Name Plate & Details of Model No, Type, Capacity, Lift, Span, Motor & Brake, etc.; Stability	B	Verification	100%	10%	As per PO & BHEL Specification	IR	√	P	V	-		
4.3	Spares, if applicable	List of Spares & Applicable reports	B	Verification	100%	10%	As per PO & BHEL Specification	IR	√	P	V	-		

Notes: 1. Customer stages specified above, under column “N”, shall be followed. Additional Customer witness/verification stages, if required, shall be as specified in BHEL PO.
 2. The latest editions/ revisions of the above mentioned /referred standards / procedures /specifications shall be used.

LEGEND: * RECORDS IDENTIFIED WITH “TICK” (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;
**** M:** MANUFACTURER, **C:** BHEL QC/BHEL AIA, **N:** CUSTOMER; **P:** PERFORM. **W:** WITNESS, **V:** VERIFICATION; **CLASS:** A - CRITICAL; B - MAJOR; C – MINOR;
 MTC- Manufacturer's Test Certificate; IR- Inspection/Test Report; COC: Certificate of Compliance; (R): Routine test; (T)/(Ts): Type test.

/ On Bidder's office letter pad /

Self-Declaration

Enquiry No.	
Enquiry Date	

In line with Government public procurement order Number P-45021/2/2017-B.E-II dated 15.06.2017, and further modified order dt. 28.05.2018 and 04.06.2020.

I / We hereby declare that I / We are a "Local Supplier" meeting the requirement of minimum local content (.....%) defined in the above government notification for the goods against above mentioned enquiry Number.

Details of location at which local value addition will be made is as follows:

Door No.	
Street / Address 1	
Street / Address 2	
District	
State	
Country	
PIN Code	

We also understand that the false declarations will be considered as breach of Integrity and liable for action.

For Company Name:

Seal:

Signature:

Date:

Place:

(Please fill all the yellow color field)

 BHEL - TRICHY	THIRD PARTY NON-DISCLOSURE AGREEMENT		Doc.No. : ISMS-04/TP/011
			Ver. No: 3.0 Rev. No: 00
	Date : 27 - 10 - 14		

THIRD PARTY NON-DISCLOSURE AGREEMENT

I, _____, on behalf of the _____ (Name of Company), acknowledge that the information received or generated, directly or indirectly, while working with BHEL, Trichy on contract is confidential and that the nature of the business of the BHEL, Trichy is such that the following conditions are reasonable, and therefore:

I warrant and agree as follows:

I, or any other personnel employed or engaged by our company, agree not to disclose, directly or indirectly, any information related to the BHEL, Trichy Without restricting the generality of the foregoing, it is agreed that we will not disclose such information consisting but not necessarily limited to:

- Technical information: Methods, drawings, processes, formulae, compositions, systems, techniques, inventions, computer programs/data/configuration and research projects.
- Business information: Customer lists, project schedules, pricing data, estimates, financial or marketing data,

On conclusion of contract, I, or any other personnel employed or engaged by our company shall return to BHEL, Trichy all documents and property of BHEL, Trichy, including: drawings, blueprints, reports, manuals, computer programs/data/configuration, and all other materials and all copies thereof relating in any way to BHEL, Trichy 's business, or in any way obtained by me during the course of contract. I further agree that I, or any others employed or engaged by our company shall not retain copies, notes or abstracts of the foregoing.

This obligation of confidence shall continue after the conclusion of the contract also.

I acknowledge that the aforesaid restrictions are necessary and fundamental to the business of the BHEL, Trichy and are reasonable given the nature of the business carried on by the BHEL, Trichy I agree that this agreement shall be governed by and construed in accordance with the laws of country.

I enter into this agreement totally voluntarily, with full knowledge of its meaning, and without duress.

Dated at _____, this ____ day of _____, 20__.

Name

Company

Signature

BANK GUARANTEE FOR PERFORMANCE SECURITY

(Non-Judicial Stamp paper/e-stamp paper of appropriate value as per Stamp Act prevailing in the State(s))

Bank Guarantee No:

Date:

To

NAME

& ADDRESSES OF THE BENEFICIARY

IFSC AND MICR CODE

Dear Sirs,

1. In consideration of Bharat Heavy Electricals Limited (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Companies Act, 1956 and having its registered office at _____¹ through its Unit at.....(name of the Unit) having awarded to (Name of the Vendor / Contractor / Supplier) (VENDOR CODE) with its registered office at _____² hereinafter referred to as the ' Vendor / Contractor / Supplier ', which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns), a contract Ref No.....dated³ valued at Rs.....⁴ (Rupees -----)/FC.....(in words.....) for⁵ (hereinafter called the 'Contract') and the Vendor / Contractor / Supplier having agreed to provide a Contract Performance Bank Guarantee, equivalent to% (... Percent) of the said value of the Contract to the Employer for the faithful performance of the Contract,

2. we,, (hereinafter referred to as the Bank), having registered/Head office at and inter alia a branch at being the Guarantor under this Guarantee, hereby, irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer any sum or sums upto a maximum amount of Rs -----⁶ (Rupees -----) without any demur, immediately on first demand from the Employer and without any reservation, protest, and recourse and without the Employer needing to prove or demonstrate reasons for its such demand.

3. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____.

4. We undertake to pay to the Employer any money so demanded notwithstanding any dispute or disputes raised by the Vendor / Contractor / Supplier in any suit or proceeding pending before any Court or Tribunal, Arbitrator or any other authority, our liability under this present being absolute and unequivocal.

5. The payment so made by us under this Guarantee shall be a valid discharge of our liability for payment thereunder and the Vendor / Contractor / Supplier shall have no claim against us for making such payment.

6. We thebank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract/satisfactory completion of the performance guarantee period as per the terms of the Contract and that it shall continue to be enforceable till all the dues of the Employer under or by virtue of the said Contract have been fully paid and its claims satisfied or discharged.

7. We.....BANK further agree with the Employer that the Employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract or to extend time of performance by the said Vendor / Contractor / Supplier from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said Vendor / Contractor / Supplier and to forbear or enforce any of the terms and conditions relating to the said Contract and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Vendor / Contractor / Supplier or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said Vendor / Contractor / Supplier or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

8. The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Vendor / Contractor / Supplier and notwithstanding any security or other guarantee that the Employer may have in relation to the Vendor / Contractor / Supplier's liabilities.

9. This Guarantee shall remain in force upto and including.....⁷ and shall be extended from time to time for such period as may be desired by Employer.

10. This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Vendor / Contractor / Supplier but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms thereof.

11. Unless a demand or claim under this guarantee is made on us in writing on or before the⁸we shall be discharged from all liabilities under this guarantee thereafter.

12. Any claim or dispute arising under the terms of this document shall only be enforced or settled in the Courts at Tiruchirappalli.

13. We..... BANK lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Employer in writing.

Notwithstanding anything to the contrary contained hereinabove:

a) The liability of the Bank under this Guarantee shall not exceed.....⁶

- b) This Guarantee shall be valid up to⁷
- c) Unless the Bank is served a written claim or demand on or before (minimum 3 to 6 months from the expiry date)⁸ all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank.

14. We, _____ Bank, have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

For and on behalf of
(Name of the Bank)

Dated.....

Place of Issue.....

BANK EMAIL ID:

BANK PHONE NO:

AUTHORISED SIGNATORIES CELL PHONE NO:

BANK FAX NO:

¹ NAME AND ADDRESS OF EMPLOYER I.e Bharat Heavy Electricals Limited

² NAME AND ADDRESS OF THE VENDOR /CONTRACTOR / SUPPLIER.

³ DETAILS ABOUT THE NOTICE OF AWARD/CONTRACT REFERENCE

⁴ CONTRACT VALUE

⁵ PROJECT/SUPPLY DETAILS

⁶ BG AMOUNT IN FIGURES AND WORDS

⁷ VALIDITY DATE

⁸ DATE OF EXPIRY OF CLAIM PERIOD

List of Consortium Banks *			
	Nationalised Banks		Nationalised Banks
1	Allahabad bank	19	Vijaya Bank
2	Andhra bank		Public Sector Banks
3	Bank of Baroda	20	IDBI
4	Canara Bank		Foreign banks
5	Corporation bank	21	CITI Bank N.A
6	Central bank	22	Deutsche Bank AG
7	Indian Bank	23	The Hongkong and Shanghai Banking Corporation Limited
8	Indian Oversea Bank	24	Standard Chartered Bank
9	Oriental bank of Commerce	25	J P Morgan
10	Punjab National Bank		
11	Punjab & Sindh Bank		Private banks
12	State Bank of India	26	Axis Bank
13	State Bank of Hyderabad	27	The Federal Bank Limited
14	Syndicate Bank	28	HDFC
15	State Bank of Travancore	29	Kotak Mahindra Bank
16	UCO Bank	30	ICICI
17	Union Bank of India	31	Indusind Bank
18	United Bank of India	32	Yes Bank

* wef 22.03.2016

Certificate by Chartered Accountant on letter head

This is to Certify that M/S
(hereinafter referred to as 'company') having its registered office at
is registered under MSMED Act 2006, (Entrepreneur
Memorandum No (Part-II) dtd:.....,
Category: (Micro/Small)). (Copy enclosed).

Further verified from the Books of Accounts that the investment of the company as per the latest audited financial year as per MSMED Act 2006 is as follows:

1. **For Manufacturing Enterprises:** Investment in plant and machinery (i.e. original cost excluding land and building and the items specified by the Ministry of Small Scale Industries vide its notification No.S.O.1722(E) dated October 5, 2006 :
Rs.....Lacs
2. **For Service Enterprises:** Investment in equipment (original cost excluding land and building and furniture, fittings and other items not directly related to the service rendered or as may be notified under the MSMED Act, 2006:
Rs.....Lacs

(Strike off whichever is not applicable)

The above investment of Rs.....Lacs is within permissible limit of Rs.....Lacs forMicro / Small (Strike off which is not applicable) Category under MSMED Act 2006.

Or

The company has been graduated from its original category (Micro/ Small) (Strike off which is not applicable) and the date of graduation of such enterprise from its original category is (dd/mm/yyyy) which is within the period of 3 years from the date of graduation of such enterprise from its original category as notified vide S.O. No. 3322(E) dated 01.11.2013 published in the gazette notification dated 04.11.2013 by Ministry of MSME.

Date:

(Signature)

Name -

Membership number -

Seal of Chartered Accountant